

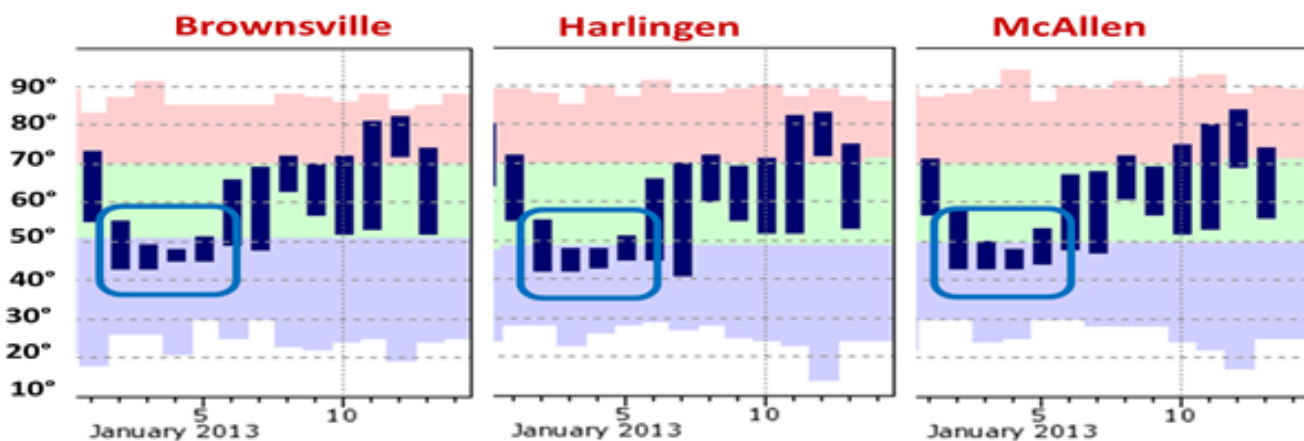


A drizzly, raw morning across the Lower Rio Grande Valley, January 15, 2013.

Could the Streak Be Ending?

January Temperatures May Fall Below Average for First Time Since 2011

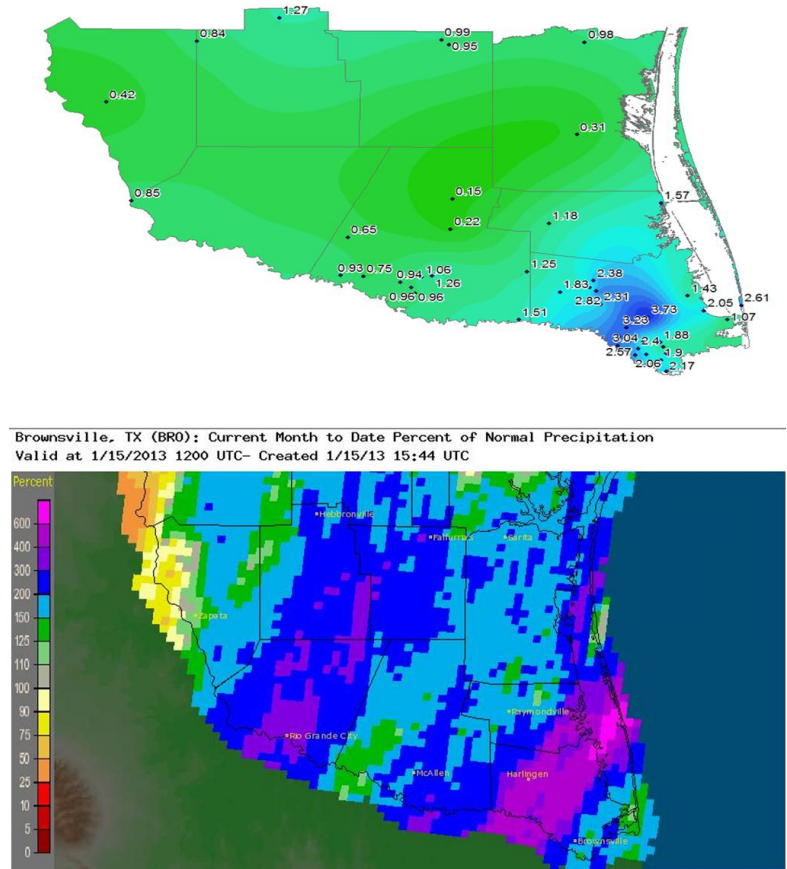
You might say we've earned it. After a [record warm 2012](#), when each month's temperatures finished above the 30 year average (1981-2010) for all primary observing stations across the Rio Grande Valley (Brownsville, Harlingen, and McAllen), 2013 began chilly. A [cold first five days](#) of the month set the tone; a rainy and mild interlude from the 7th through the 9th was followed by a quick, but temporary, return to sultry temperatures and humidity before raw chill set in on the 13th. Through January 14th, temperatures across the Rio Grande Valley were roughly 1 to 2°F below average; slow moderation toward seasonal averages – afternoon temperatures near 70°F and daybreak temperatures between 45 and 50°F – was expected by the weekend of January 19th-20th. As of this writing, another cool down was possible during the week of January 21st. Beyond the 25th, there was little indication of a substantial warm up to overcome temperature departures which will likely range from 2 to 4°F below average on the 25th. Confidence is increasing for January, 2013 to break the streak of above average temperatures, which reached 23 months at Brownsville, and 12 months at both McAllen and Harlingen/Cooperative [Note: Departure at McAllen was -0.2°F in December, 2011; the remaining months of 2011 were all above average.]



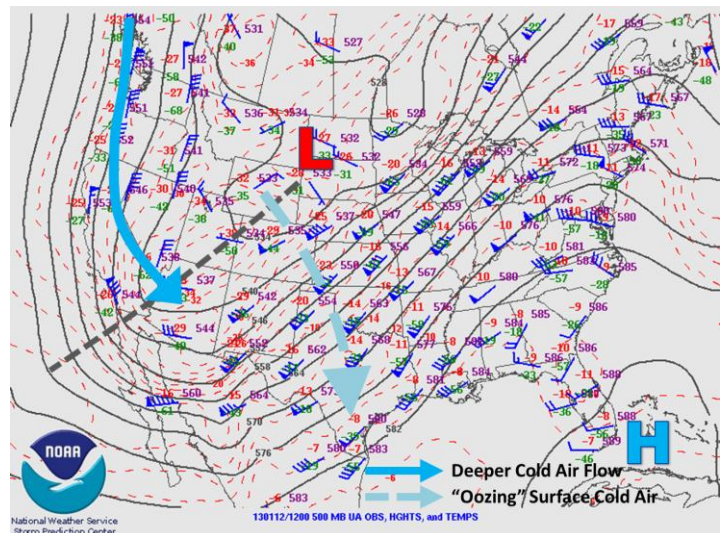
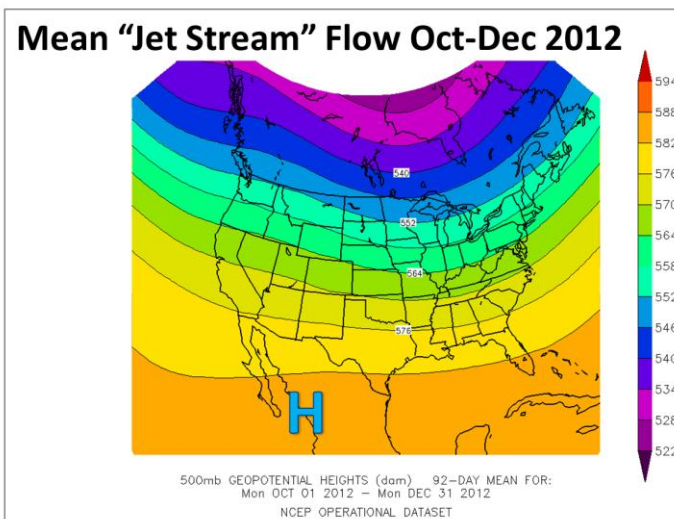
Above: Temperature ranges for January 1-13 at selected sites in the Lower Valley. Dark blue bars indicate daily range. Light red shading indicates above average; the top of the range is a high temperature record. Light green shading indicates the 1981-2010 daily average range. Light blue shading indicates below average; the bottom of the range is a low temperature record. Blue highlight indicates early month cold spell.

Rio Grande Valley Rainfall through January 14th

What About Rainfall? January rainfall through the 15th ranged from 2 to 4 inches in a stripe of the Lower Valley, including portions of Brownsville, San Benito and Harlingen, as well as South Padre Island (right, top). Elsewhere, rainfall ranged from one half to one and one half inches. For all areas except for a patch of the Rio Grande Plains in Zapata County, half-month totals were at or above average; stripes of the region from Starr to Jim Hogg County (200 to 400 percent of the half-month average) and Cameron/southeast Willacy County (300 to 600 percent of the half-month average) had exceeded the full-month averages for January (right, bottom). Welcome rains for all, and a slight drought-denter for Cameron and Willacy County. Still, plenty more rainfall is needed to break the back of the drought, which began in early 2011.

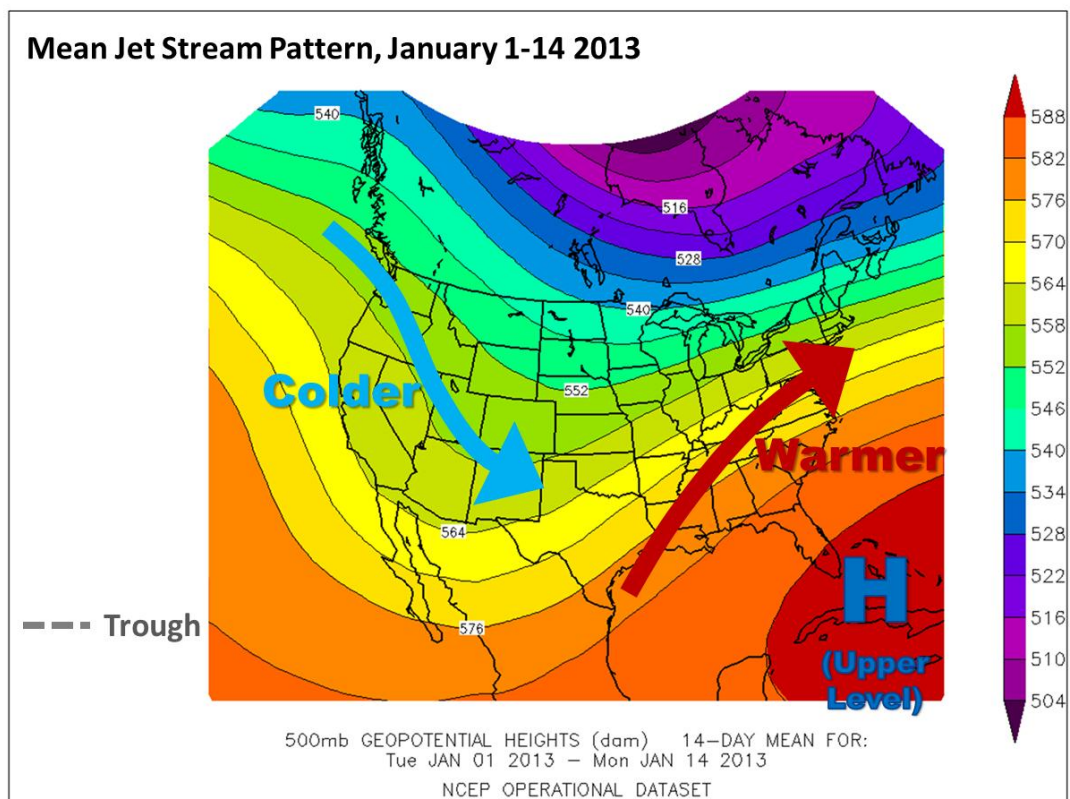
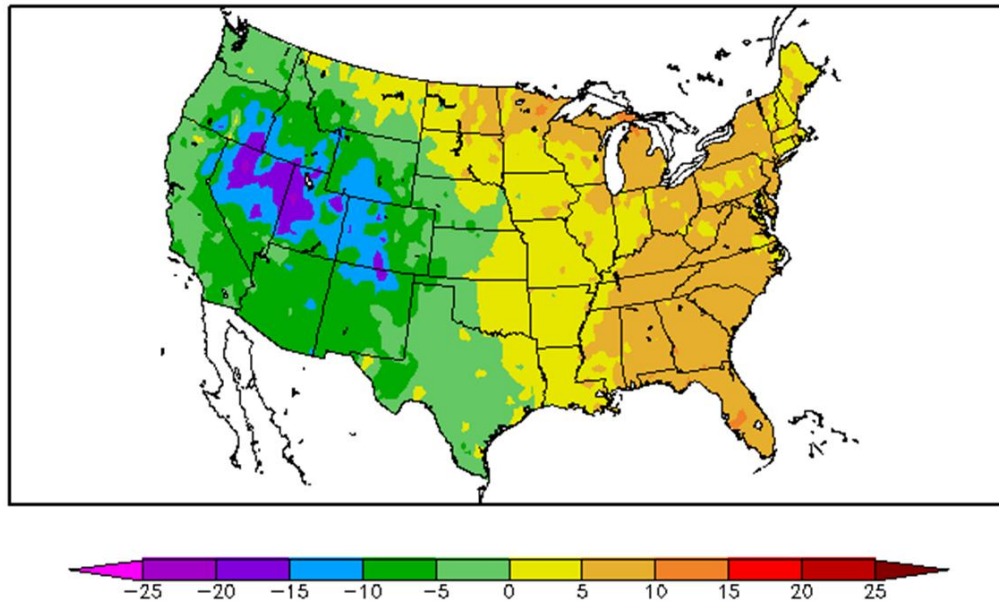


Pattern Switch. After an autumn of upper level ridging across the southwestern U.S. and northern Mexico maintained a dry and warm/hot pattern across the Rio Grande Valley (below left), the New Year brought a dramatic shift in the pattern for the first half of January. The persistent ridge was replaced with a broad trough, which brought air sourced in the northern Pacific Ocean, western Canada/Alaska, and even Siberia, into the Pacific Northwest states and northern Rockies. This air oozed eastward and southward through the southern Rockies and Great plains, reaching the Rio Grande Valley and northeast Mexico for the first five days of the year. A [smaller system](#) “broke away” from the pattern, dove unusually far south into the states of Chihuahua and Coahuila, Mexico, between the 7th and 9th and provided welcome rainfall to much of Texas but not much recovery in temperature. Another, deeper trough surged across the western half of the country by the 12th (below right); another chilly front crossed the Valley on the 12th and chilly air locked in for most of the week.

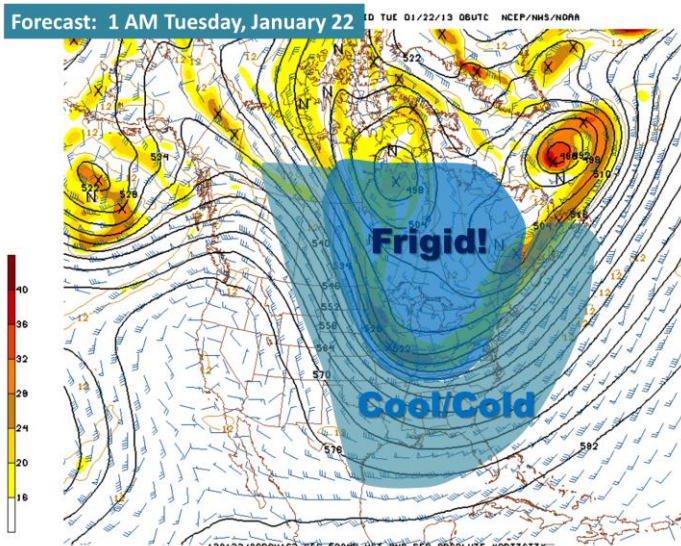


Above Left: Note the higher pressures across northern Mexico, with troughing toward the U.S. east coast. **Right:** Snapshot of the “Jet stream” (500 mb) flow, for January 12th, 2013. Gray dashed line indicates trough location.

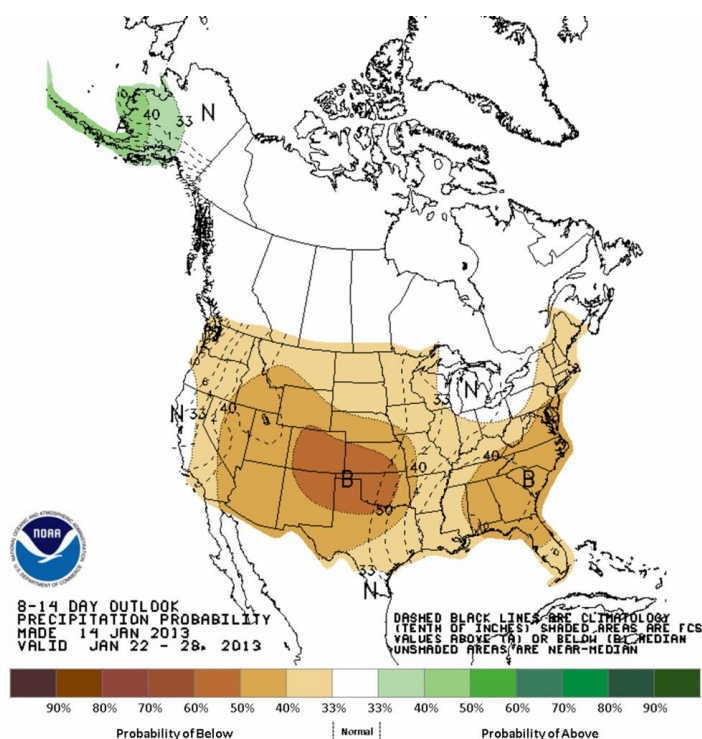
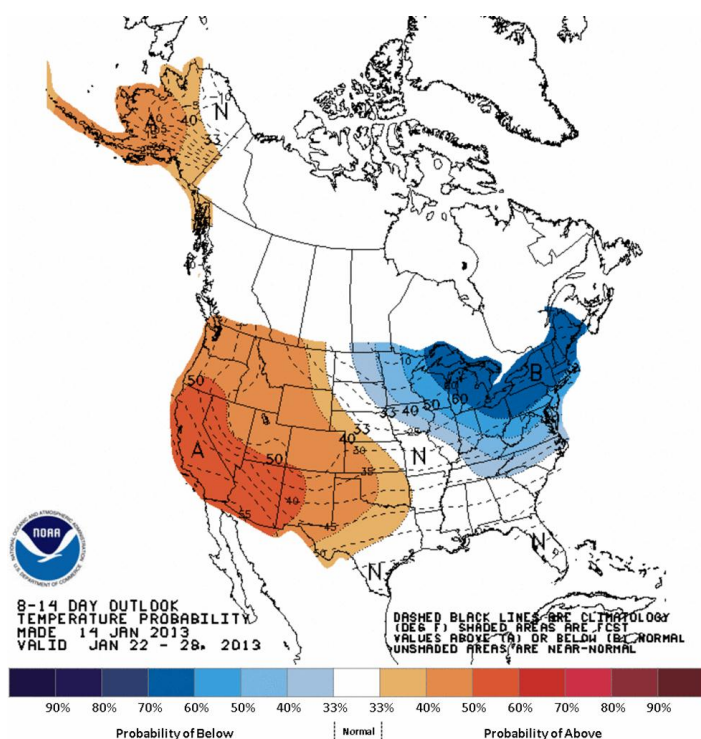
Departure from Normal Temperature (F) 1/1/2013 – 1/14/2013



Above: U.S. Temperature departures from 1981-2010 average (top) and mean jet stream (500 mb) pattern (bottom) through January 14th, 2013. Click on the image to see a loop of the “typical” surface feature movement with this pattern. Gray shading indicates source/movement of cold air.



How Does This End? The trough which has dominated the western half of the country will swing east by the weekend of the 19th-20th, then meet with energy from the arctic to bring serious winter weather to the Great Lakes and Northeast U.S. for the first half of the January 21st work week (left). The strength of the polar push will keep cool-ish weather across much of Texas to begin that week; by the 25th, conditions will have moderated toward or just above average. Thereafter, considerable uncertainty remains in the forecast; however, indications suggest that a prolonged, much above average period will not occur. As for rainfall? The shifting, deepening trough will ensure little or no rainfall through the final weekend of the month.

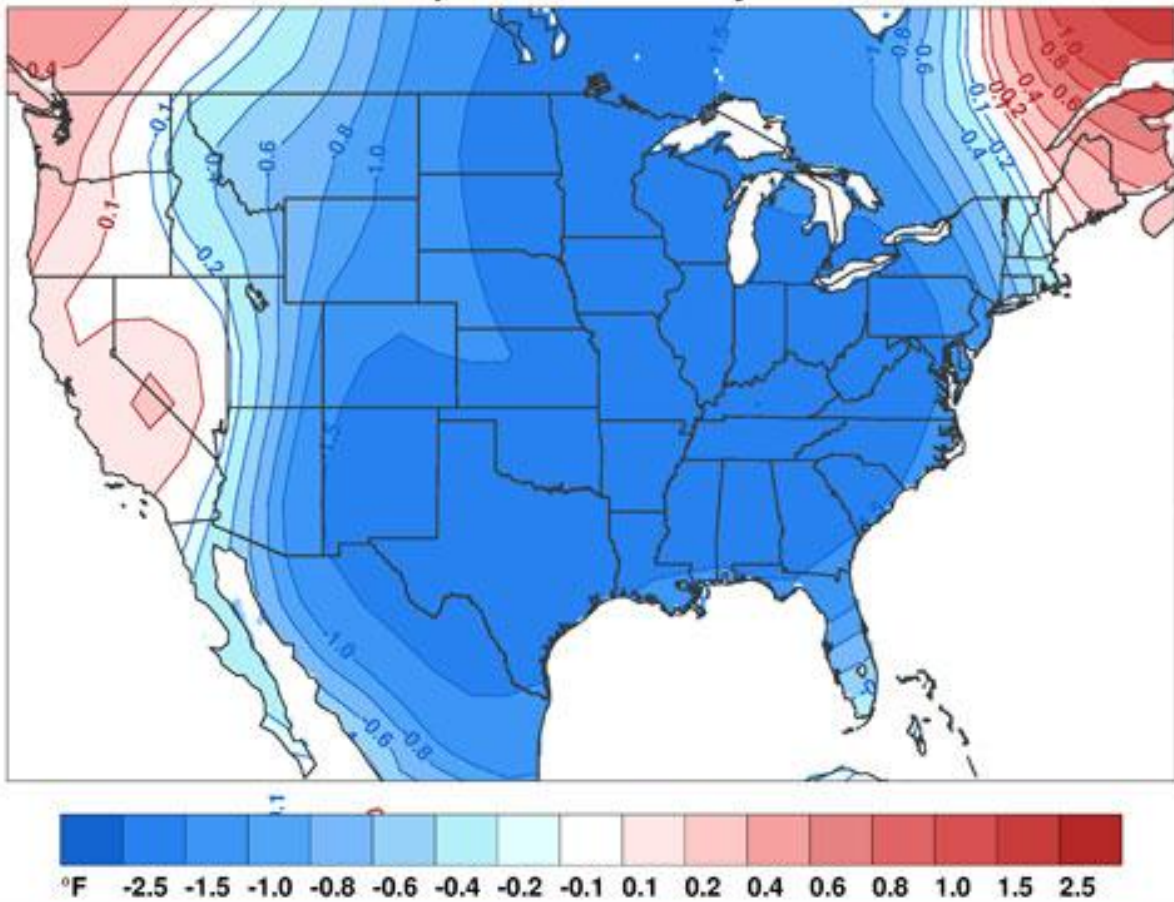


Above: Eight to Fourteen day outlook for the period January 22 through 28, 2013, issued on January 14th, 2013. Temperatures may edge above normal in Texas, but confidence was medium when the forecast was made.

Another Take on Winter (through February)

Though we still expect winter, overall (December-February) to end up warmer than the long term average, much will depend on how the puzzle pieces shape up. Two of those puzzle pieces, the Arctic and the North Atlantic Oscillation, have been "hinting" at a predominant negative phase for the latter half of the 2012/2013 winter. Research and models by the Massachusetts Institute of Technology and [Atmospheric and Environmental Research](#) suggest that anomalously deep Siberian snowpack in mid to late Autumn, 2012, may influence the strength of the negative phase of the [Arctic and North Atlantic Oscillation](#), which, when combined with a Neutral La Niña, might favor a cool – and dry – end to winter. Stay tuned; the winter of 2012/2013 may have more curves ahead!

AER Forecast Temperature Anomaly Dec-Jan-Feb 2013



Above image credit: National Science Foundation.